# GENERAL 🚳 ELECTRIC

APPARATUS AND ENGINEERING SERVICES
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February 13, 1986

TOFECOLOGY

Mr. James L. Malm Environmental Quality Division State of Washington Department of Ecology N. 4601 Monroe, Suite 100 Spokane, WA 99205-1295

Dear Mr. Malm:

Enclosed is the work plan and schedule for the evaluation and remedial study for the General Electric Company facility at E. 4323 Mission Avenue, Spokane, Washington.

The evaluation activities as described in the work plan will be performed by Bechtel National, Inc. and will start within two weeks of your review and approval.

Quotations have been requested from local contractors to install a fence around the property.

Very truly yours,

Barry R. York

Environmental Projects Manager

/fz

**Enclosure** 

cc: J. Harrsen - Schenectady

C. Lafferty - Denver SS

B. MacDonald - Fairfield

W. Thornton - Schenectady

Ned Therien State of Washington Dept. of Ecology Mail Stop PV-11 Olympia, WA 98504-8711 John Anicetti Environmental Health Division Spokane County Health District W. 1101 College Ave. Spokane, WA 99201

P. Mote, Bechtel National, Inc.



WORK PLAN

TO ASSESS SITE CONDITIONS

MISSION STREET FACILITY

SPOKANE, WASHINGTON

PREPARED FOR

THE GENERAL ELECTRIC COMPANY

BY

BECHTEL NATIONAL, INC.

FEBRUARY 1986

#### WORK PLAN

# SUBSURFACE ASSESSMENT OF MISSION AVE, SPOKANE SITE

#### A. BACKGROUND

Past electrical equipment repair activities at the old General Electric (GE) Mission Street facility potentially contributed to elevated concentrations of PCBs and heavy metals in the soil at the facility site. Soil samples collected from the GE site by both GE and the State of Washington Department of Ecology, and analyzed by independent laboratories have confirmed that elevated levels of several aroclors of PCB and various heavy metals exist at the site.

As a result of these data, Mr. James L. Malm of the State of Washington, Department of Ecology, Environmental Quality Division DOE) has requested that GE take the following actions:

Conduct a detailed investigation of the site to define the extent, degree and type(s) of contamination present,

Present a written report on the results of the investigation to the DOE.

Provide a written plan and schedule for cleanup of all contamination at the site

Implement the cleanup plan once it is approved by the DOE.

#### B. KEY ISSUES

In order to evaluate and recommend remedial alternatives, the nature and extent of PCB and heavy metal concentrations in the soil must be understood. Data needed to define conditions of subsurface contamination can be numerous and varied. Some of these data are currently available. Other data must be complied from several sources or generated from new field investigations.

The results of chemical analyses of soil samples collected in 1976 and 1985 show the presence of PCB and heavy metals. The higher concentrations occur along the west side of the property near the former steam cleaning and storage areas. However, the extent, both lateral and vertical, is not known and the exact locations of all operations that may have contributed to the elevated concentrations are also not known. In addition, the past uses and the condition of the dry wells located inside the building must be determined. These are considered key issues in determining the extent of site contamination.

#### C. SCOPE OF SERVICES

In response to the DOE request, GE plans to conduct a remedial investigation and a feasibility study to determine the extent of site contamination and to evaluate and recommend alternative remedial solutions.

To accomplish these objectives, six work asks are proposed.

Tasks 1 through 3 constitute the remedial investigation, and

Tasks 4 through 6 constitute the feasibility study. The

following summarizes the work tasks.

#### Remedial Investigation

Task 1 Evaluate Existing Conditions

Task 2 Conduct Field Investigations

Task 3 Evaluate Data

Initial laboratory data from site soil (solid) samples indicate that elevated levels of PCB and heavy metal exist locally in and around the Mission Street building. The existing data were generated from shallow (1.5 feet deep or less) surface samples, and the vertical extent of PCBs and heavy metals is not known. Data from other similar sites contaminated with PCB have shown that PCB tends not to migrate through soil because it is attenuated by the soil particles. For this reason, field investigations will be conducted in phases. Initially, soil samples will be collected at moderate depths of about 3 feet or less (Phase 1). Should chemical analysis of these samples indicate that significant levels of PCBs and/or heavy metals have extended greater than the 3-foot depth, another phase of field work will be planned (Phase 2). This supplementary field work will determine the lateral extent of the PCBs, as well as investigate those areas where PCBs may be found deeper than 3 feet. These data will then be evaluated and used to identify remedial action alternatives (Task 4).

#### Feasibility Study

Task 4 Identify and Screen Remedial Action Alternatives

Task 5 Evaluate and Recommend Preferred Alternatives

Task 6 Prepare Remedial Action Plan

The objective of the feasibility study will be met by identifying and screening remedial alternatives, evaluating alternatives, and recommending a certain remedial measure or a combination of measures that will provide the basis for the

remedial action plan. Remedial alternatives will be based on remedial criteria finalized during the remedial investigation. Evaluation of alternatives will be based on conceptual designs and cost estimates prepared during Task 5. Remedial alternatives that address source stabilization, isolation, or removal will be considered. Once the appropriate remedial actions are chosen, a remedial action plan will be prepared in Task 6.

#### D. DELIVERABLES

The following products will be delivered:

- o A Phase 1 Remedial Investigation summary report describing the first phase of the field work and the analytical results. The report will describe the adequacy of the results to date in terms of delineating site contamination and make recommendations for a second phase of field work, should one be needed
- o A second (final) Remedial Investigation Report (if needed) describing the results of all field activities and analytical results
- o A final report on the Remedial Investigation and Feasibility Study
- o A Remedial Action Plan

#### E. TASK WORK BREAKDOWN

Task 1 - Evaluate Existing Conditions

In Task 1, a thorough and up-to-date evaluation of existing conditions will be made to aid in finalizing the field investigation program described under Task 2. To accomplish this, the following subtasks will be performed.

# Subtask 1.1 - Collect and Review Data

Existing chemical data for the site will be compiled and evaluated to determine the approximate distribution of PCBs and heavy metal. Also, interviews with employees knowledgeable about past operations and practices will be conducted to help finalize sampling locations. In addition, geologic reports and maps that address the conditions near the site will be reviewed to establish potential site geologic conditions. These data will provide input to the details of the sampling plan, technical specifications and health and safety plan.

# Subtask 1.2 - Prepare Sampling Plans and Specifications

Sampling plans, procedures, and specifications for all field and laboratory work will be prepared as appropriate. The sampling plan will include sample locations and depths, procedures for taking the samples, and requirements for sample storage and transportation.

Specifications for field investigations and laboratory analytical work will be prepared. specifications for field investigations will address drilling and sampling methods. Laboratory specifications will address analytical parameters, methods and quality assurance requirements.

#### Subtask 1.3 - Health and Safety Plan

Once the field plans and procedures are established, a health and safety plan will be prepared. The plan will address the specific site conditions.

# Subtask 1.4 Present Plan to Agencies

Current State interest in the subsurface conditions at the site indicates that a review of this work plan by various agencies is required. If required, a presentation to the agencies on any submittal required to initiate this work will be made.

# Task 2 - Conduct Field Investigations

This task is designed to collect specific data on site contamination. The following are the subtasks planned for this task.

# Subtask 2.1 - Perform Soil Sampling

Soil samples will be collected at locations where sources of PCB and heavy metals are suspected as a result of the site historical information reviewed in Task 1. The work will include collecting shallow samples to about 3 feet deep to establish the vertical extent of PCB and heavy metals. Because the source of these materials was either in or adjacent to the building, they are not expected to extend a great distance from the building. A Phase 1 round of sampling will attempt to establish the lateral extent of PCB's and heavy metals surrounding the building.

During Phase 1, samples will be collected using either hand operated equipment, such as a hand operated power auger, or a small backhoe. The backhoe is the preferred alternative if the soil is either hard or rocky.

It is planned to sample at about 50 locations during Phase 1. Given the existing data set, this should provide an adequate areal distribution of sample locations. Samples locations have initially been laid out on about a 50-foot grid spacing as shown

on Attachment 1. Four samples will be collected each location; one each at ground surface, 1 foot deep, 2 feet deep, and 3 feet deep. About 200 samples will be obtained. In order to minimize analytical costs, selected groups samples will be sub-sampled, and composites of each sampled level will be made (one composite each for the ground-surface, 1-foot, 2-foot, and 3-foot levels for each selected group of samples). Only samples located away from the known source areas, which, therefore, have a higher probability of being uncontaminated, will be considered for compositing. Initially, samples from non-composited locations and the composited samples will be analyzed. The original samples from that composite group will be analyzed individually to better define the distribution of PCBs or heavy metals, if required.

Should the Phase 1 analysis of the outside soil samples indicate that significant levels of PCBs and/or heavy metals extend to a depth of at least 3 feet, or that the areal extent is not sufficiently defined, Phase 2 subsurface sampling will be initiated. A drill rig will likely be employed to collect these samples from the deeper depths, however, the determination of the necessary equipment and the Preparation of the Phase 2 sampling plan is not appropriate until the Phase 1 analysis is complete. If the Phase 2 investigation is performed, a second analysis and evaluation period will follow.

Sampling of the dry wells inside the building will be done during Phase 1 using a small drill rig. The actual method of collecting the samples has not been established because subsurface conditions are not adequately understood. However, split-tube or core barrel sampling is the two most likely options.

The depth of the dry-well samples will depend on the ability of the drill rig to penetrate and obtain samples of the subsurface materials. Given a fairly consistent advance rate, continuous sampling to depths of about 30 feet below the bottom of the dry wells is planned.

# Subtask 2.2 - Analyze Soil Samples

All samples will be analyzed for at least PCB Aroclors 1242, 1254, and 1260, and PCB concentrations will be determined using EPA analytical method 8080. In addition, analyses for priority pollutant metals will be conducted on near-surface soil samples. Existing analytical results for heavy metals indicate that they are predominantly associated with the dry wells inside the building.

#### Task 3 - Evaluate Data

Field and laboratory data collected during Tasks 1 and 2 will be reduced and integrated to identify the potential sources and extent of PCB and heavy metals.

#### Subtask 3.1 - Reduce Field Data

Field boring and trenches will be logged to document the subsurface geologic conditions encountered. Such information will be useful in interpreting the chemical analytical results, planning for addition work should any be needed (Subtask 3.3), and developing the remedial action alternatives (Task 4).

#### Subtask 3.2 - Map Extent of Contamination

Laboratory analytical data from Phase 1 and Phase 2 investigations will be used to develop vertical and lateral PCB concentration profiles across the site. If possible, iso-concentration lines will be prepared to describe the site conditions. Such iso-concentrations will benefit the development of appropriate remedial action alternatives.

#### Subtask 3.3 - Evaluate Need for Additional Field Studies

Following collection and interpretation of Phase 1 and Phase 2 field and other data, the need for additional field work may arise as a result of the findings of this initial program. If necessary, a plan for the additional field studies not described in this work plan will be prepared.

Task 4 - Identify and Screen Remedial Action Alternatives

After sufficient data have been collected to define the vertical and lateral extent of PCB are heavy metal, remedial criteria will be established and remedial action alternatives meeting these criteria will be identified.

Appropriate regulatory agency documents defining cleanup guidelines will be examined to develop remedial criteria including cleanup levels for this side. Determination of remedial criteria will consider the cost, av ilability of remedial technologies and their effectiveness, and environmental impacts. This task will involve discussion with stage regulatory agencies and examination of the case histories of similar sites.

Remedial alternatives will likely be divided into the following three categories:

- o Stabilization (alternatives making the material immobile)
- o Isolation (alternatives isolating the material from direct contact)
- o Removal (alternatives to excavate and dispose)

# Task 5 - Evaluate and Recommend Remedial Action Alternatives

Conceptual designs for promising alternatives identified in Task 4 will be developed. Where applicable, designs will include conceptual design drawings indicating all major equipment, approximate sizes, and construction materials. Cost estimates based on the conceptual designs will be developed on the basis of these drawings using current cost data for major equipment and historical cost data for construction, operation and maintenance.

Upon completion of conceptual designs and cost estimates, alternatives designed to accomplish common objectives will be compared. Alternatives will be evaluated in terms of the following major criteria:

Effectiveness and reliability

Cost

Environmental impact

Acceptability to regulatory agencies

Compatibility with land-use plans

On the basis of this evaluation, an alternative or combination of alternatives will be recommended for detailed design and implementation. Weighting of evaluation criteria will be done in conjunction with GE.

Task 6 - Remedial Action Plan

The findings and recommendations that are developed in Task 5 will provide the basis of the Remedial Action Plan. The components of the plan will include at least the following:

Definition of Site Contamination
Proposed Remedial Action
Rationale and Supporting Documents (if needed)
for the selected action
Details of the Remedial Action
Verification Plan for the Effectiveness of
the Remedial Action

The plan will be submitted for State Regulatory Agency review and concurrence.

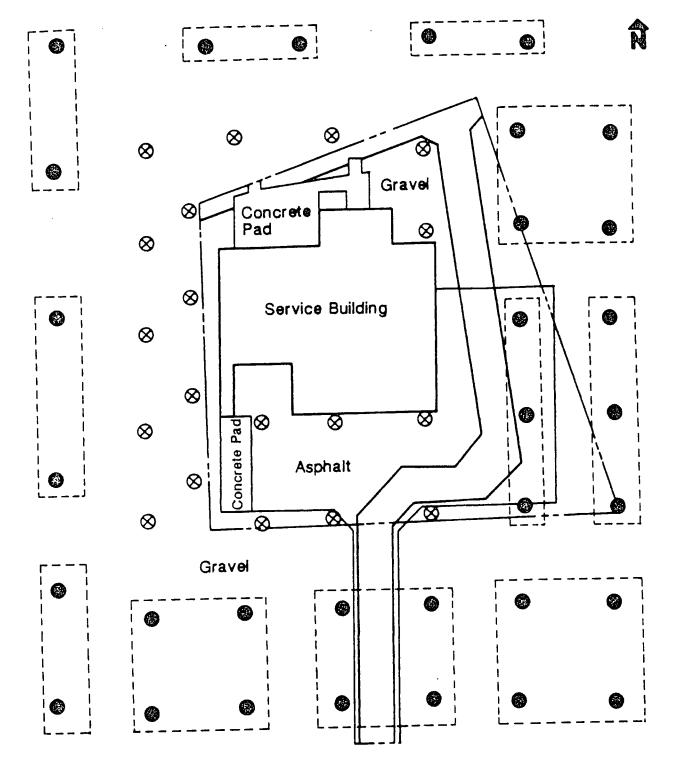
# PROJECT SCHEDULE

#### TASKS

# HONTHS

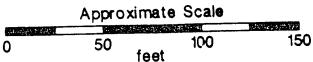
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1.	EVALUATE EXISTING CONDITIONS	7	2	/	2	/	2	1	1	/	/	
	1.1 Collect and Review Data	40										
	1.2 Prepare Sampling Plans and Specifications											
	1.3 Prepare Health and Safety Plan	<b>33</b>										
	1.4 Present Plan to Agencies		24									
	1.5 State Review		4	A								İ
2.	CONDUCT FIELD INVESTIGATIONS											}
	2.1 Perform Soil Sampling											
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	2.2 Analyze Soil Samples					E	(Provide					
	2.3 State Review	:			1		4					
3.0	EVALUATE DATA											
	3.1 Reduce Field Data					•	T. C. T.	32				
	3.2 Delineate Site Source Areas								1			
	3.3 Map Extent of Contamination								- AT WARE			
	3.4 Evaluate Need for Additional Field Studies											
	3.5 State Review								4	<b>A</b>		
4.0	IDENTIFY AND SCREEN REMEDIAL ACTION ALTERNATIVES											
	4.1 State Review								1	4	<b>A</b>	
5.0	EVALUATE AND RECOMMEND REMEDIAL ACTION ALTERNATIVES								:	<u> </u>	भी सम्बद्धाः <u>स्</u> वतः	
	5.1 State Review										4	•
6.0	REMEDIAL ACTION PLAN										Seance	
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A RESTART SCHEDULE WHERE REGULATORY REVIEW IS REQUIRED



# **LEGEND**

- ⊗ Discrete sample location
- © Composite sample location (composited groups shown with broken lines)



# ATTACHMENT 1 General Electric - Spokane PHASE 1 Sample Locations